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entific papers, but he exerted a powerful influence upon his pupils and upon his fellow physicists. It is not merely American science, however, which can ill afford to lose him twenty years before his time. American life in all its aspects is sadly in need of men of Bumstead's type. The cause of sanity, of culture, of Anglo-Saxon solidarity, of scholarship, of science, of world civilization, all suffer irreparably through his death."

AWARD OF THE NOBEL PRIZE  
TO PROFESSOR AUGUST  
KROGH

In Stockholm on last December 10, Dr. August Krogh, professor of zoophysiology in Copenhagen University, received the Nobel Prize in Medicine for the year 1920. The address of presentation was made by Professor J. E. Johansson of the Karolinska Institute of Stockholm. The award was given Dr. Krogh in recognition of his studies on the "capillariomotor mechanism." Until recently the conception of capillary function generally held in medical science has been that the number of open capillaries in any tissue depends upon the blood pressure in the small arteries which connect with these capillaries. As the blood pressure increases, for example, due to physical exercise, more and more capillaries open up to receive blood supply and thus accommodate the increased circulation.

Dr. Krogh who, during the past few years has made noteworthy researches in the general field of the physiology of respiration, clearly saw that if the capillaries act in this way, opening only in response to the stimulus of blood pressure and in number according to the height of the blood pressure, then the different capillaries of any tissue must vary in their susceptibility to this stimulus. Consequently if the animal organism is resting or fairly quiet, the blood supply would tend to flow in certain

fixed capillary channels, viz, those which have the slightest resistance, hence some of the body cells adjoining capillary walls would be well supplied with oxygen while others would be in constant danger of suffering from oxygen want. When studying the matter experimentally in living tissues, he observed that no one capillary or group of capillaries functioned continuously. The capillaries are constantly changing in caliber. After one opens and receives blood supply it tends to close, while others in neighboring parts of the tissue open and provide new channels for circulation. There is thus a rotation or sequence of functioning so that all the capillaries receive in time their supply of fresh oxygenated blood. Further experimentation by Dr. Krogh has shown conclusively that the dilatation of the capillaries is not primarily dependent upon the blood pressure. Direct mechanical, thermal or chemical stimulation may produce dilatation of both capillaries and arteries and when the stimulus is sufficiently strong, the effect spreads to an area greater than that stimulated. The experiments indicate that the natural condition of capillaries in healthy tissue is that of tonic contraction due to local reflex action in the capillary walls and that the blood carries some substance as yet unknown which acts as a stimulus to this contraction, hence when the capillary receives blood, it begins to contract and after the stimulating substance is exhausted, it dilates to receive a fresh supply. The identity of the substance responsible for the tonic action of the blood has not been proved, but Dr. Krogh has shown it cannot well be oxygen.

Many research workers throughout the preceding years have noted what to them seemed curious phenomena in connection with the dilatation and contraction of capillaries and have recorded these facts. This work of Dr. Krogh is outstanding in that he



**DR. AUGUST KROGH**

has independently observed what had previously been incidentally found, has discovered other related phenomena, and correlated these so as to prove the existence of a second mechanism controlling the circulation of the blood. The heart and arteries may be termed the first mechanism with the function of dividing and propelling the blood to the different body tissues; the "capillariomotor mechanism" finally distributes the blood throughout those minute parts of the tissue which have need for the different substances which it is carrying. The two mechanisms, although commonly functioning in harmony, are thought to be relatively independent of each other.

Dr. Krogh is scarcely forty-five years old. He received his educational and scientific training in Denmark and is a son of whom that country can well be proud. For a number of years after receiving his degree and serving as laboratory assistant to Professor Christian Bohr no suitable teaching or research position opened to him in Denmark. However, he refused to accept such a position in any other country. He made two expeditions to Greenland, the first to study the tension of carbon-dioxide in ocean water and the second to investigate the respiratory metabolism of the Eskimos. Thus, without any laboratory facilities, he literally plunged into research. A study on the expiration of free nitrogen from the body was recognized as so important so as to receive the Seegen Prize of the Imperial Academy of Sciences in Vienna. He was appointed a lecturer in physiology under the science faculty of the Copenhagen University in 1908 and was provided with a small laboratory in the fall of 1910. It is in this laboratory that most of his scientific work has been done. A visitor will gain the impression that his laboratory facilities are rather meager as

regards both room and equipment and that he does not have adequate assistance. Certainly it would be a most worth while investment to provide such a man with all the assistance he can comfortably direct. His researches have covered a wide range and have been singularly concise and complete. He is a master technician, a scientific explorer by nature, a skilled interpreter and critic of scientific facts and he has much facility in writing. Most of his recent work is published in English. About his personality there is a quiet humility which strongly attracts advanced students and begets confidence in Dr. Krogh's scientific results. His mental attitude can well be illustrated by a sentence from a recent letter to an American colleague. "The Nobel award came as a perfect surprise to me and when it was first told me by a journalist, I declined to believe it because, in my opinion, my work on the capillaries was so far only a promising beginning."

#### INTERNATIONAL EUGENICS CONGRESS

In 1912 there was held in London, under the auspices of the Eugenics Education Society, an International Eugenics Congress. A second congress was planned to be held in New York City in 1915 but, on account of the war, plans for the congress were abandoned. In the autumn of 1919, at a meeting of the International Committee of Eugenics held in London, it was agreed to hold the second International Congress in New York City in 1921. A general committee to arrange for this congress was selected by the National Research Council in the spring of 1920, and it is now announced that the Second International Congress of Eugenics will be held in New York City, September 22-28, 1921.